

MINUTES FROM THE EPA/SCIENCE ADVISORY BOARD
Environmental Economics Advisory Committee Meeting
November 30, 2001

PURPOSE: The Environmental Economics Advisory Committee met to:

- a) receive a briefing on EPA's continuing efforts to enhance its practices for estimating the benefits of environmental actions that reduce mortality risks;
- b) engage in a Consultation with EPA representatives on possible opportunities for using incentives in water and other areas of pollution control;
- c) engage in a Consultation with EPA representatives on the approach they wish to take in developing an economic research strategy; and
- d) receive a briefing on the Pollution Abatement Cost and Expenditures (PACE) survey.

The meeting was announced in the Federal Register at FR Vol. 66, No. 208, Pages 54243-54244 (October 26, 2001) (see Attachment A). An agenda is included as Attachment B.

LOCATION: The meeting was held in Room 6530, Ariel Rios North Building, 1200 Pennsylvania Ave., NW, Washington, DC, 20004.

PARTICIPANTS: The following SAB members participated in this meeting of the EEAC: Drs. Robert Stavins (Chairman), Dallas Burtraw, Gloria Helfand, Michael Hanemann, Paul Joskow, Richard Norgaard, Stephen Polasky, and Richard Revesz. A committee roster is included as Attachment C. EPA Staff and persons from the public who attended the meeting are indicated on the sign-in sheets (Attachment D).

MEETING SUMMARY: A summary of the committee's activities follows.

1. Welcome and Introductory Remarks; Dr. Robert Stavins, Harvard University (9:00 am)

Dr. Stavins called the meeting to order and welcomed the committee, Agency representatives, and observers. He noted the unusual agenda for the day (a large number of agenda items with no current requirement for a formal response by the EEAC). Dr. Stavins also thanked Dr. Dale Jorgenson of Harvard University, who has completed his term of service, and welcomed to the Committee Drs. Michael Hanemann, University of California, Berkeley, and Steve Polasky, University of Minnesota. He then asked the members to introduce themselves and note for the record any interests they had in the issues before the Committee. Introductions included:

- a) Dr. Robert Stavins is the Albert Pratt Professor of Business & Government at the John F. Kennedy School of Government at Harvard University, Cambridge, MA. He receives periodic support from EPA under a cooperative agreement with Harvard University; and EPA has provided support for an Executive Program short-course he chair on

“Environmental Economics for Non-Economists.” Dr. Stavins also serves as a consultant for electric utilities in administrative proceedings before the U.S. EPA and other regulatory agencies on NPDES issues and serves as a consultant to electric utilities on their participation in tradeable permit programs.

- b) Dr. Richard Norgaard is a Professor, University of California-Berkeley, CA. He noted that some of his students have worked on EPA relevant issues.
- c) Dr. Gloria Helfand is a Professor of Environmental Economics, University of Michigan. She has occasionally received funds from EPA, but not on any issues on the day’s agenda.
- d) Dr. Dallas Burtraw is a Senior Fellow at Resources for the Future, Washington, DC. He has received EPA funds on benefit and cost issues; he also consults with power companies on tradeable permit issues.
- e) Dr. Paul Joskow is a Professor of Economics at the Massachusetts Institute of Technology Center for Environmental Policy Research. He noted his receipt of grants from EPA in the area of allowance trading in the air medium.
- f) Dr. Richard Revesz is a Professor of Law at the New York University School of Law. He has conducted research in the area of value of statistical life and published on the same.
- g) Dr. Michael Hanemann is a Professor at the University of California-Berkeley, CA. He has received research support from EPA and has consulted with water marketing groups in the United States.
- h) Dr. Stephen Polasky is a Professor of Economics at the University of Minnesota. His research is in the area of ecological/environmental economics, biodiversity conservation, and endangered species policy.

At the request of Dr. Stavins, the members of the public then introduced themselves by name and institutional affiliation so all would know who was in the room. The sign in sheets at Attachment D indicate those present at the meeting who recorded their presence.

2. Briefing on Mortality Risk Valuation

Dr. Stavins introduced this briefing by EPA on their draft plan for developing mortality risk valuation guidelines. He noted that the EEAC had generally covered this topic in its interaction with EPA on the Economic Analysis Guidelines and more recently in its review of an EPA “white paper” on the issue. The EEAC also received presentations on this subject from EPA, OMB, and CEA. He noted that EPA intends to develop guidance for its staff that can bring consistency across the various EPA program offices.

The Committee heard from a number of speakers in this session:

- a) **Dr. Albert McGartland**, Director of the EPA National Center for Environmental Economics, introduced the briefing on EPA activities to improve VSL estimates (assisted by Dr. Kelly Maguire and Dr. Nicole Owens) (See Attachment E). The EPA plan for developing new guidance is shown in Attachment F to these minutes. EPA earlier committed to periodic reviews and updates of Economic Analysis Guidelines issues, of which, improvements to VSL procedures are a significant part. EPA considers this issue to be ripe now for beginning an update to the “guidance.” **Dr. Nicole Owens, NCEE**, provided additional information on the background and issues that are focused upon in the plan and mentioned EPA activities that are anticipated to be conducted to move the issue forward (3 cooperative agreements on important issues, annual NCEE/NCER workshops on research, workshop report completion, develop a final comprehensive plan). **Dr. Kelly Maguire** discussed the efforts to compile research that will contribute to the guidance to be developed, the workshop format, and the timeline for completing the activity.
- b) **Dr. Bryan Hubbell**, from the EPA Office of Air Quality, Planning, and Standards, discussed value of mortality risk reduction research at OAQPS. Efforts discussed included (see Attachment G):
 - i) Update of VSL Distributions, Kramer and Kochi: A three-phase effort to improve the VSL estimate (literature compilation on VSL estimates; statistical pooling to derive means and distributions of VSL; and a VSL meta-analysis).
 - ii) Fatal Risk Preference Calibration; RTI and Kerry Smith: Assessing how preference calibration techniques may be modified for application to changes in mortality risk.
 - iii) Survey research on the value of health risk reductions (value of life for children and elderly; value of health risk reductions for air toxics)
- c) **Dr. Dan Black**, from the Center for Policy Research of Syracuse University, discussed a number of problems with estimating the value of risk reductions and presented some preliminary results of studies being conducted at his Center.
- d) **Public Comment. Dr. Michael Whinihan**, Senior Economist with the General Motors Corporation, presented oral and written information to the Committee as a member of the public. His remarks noted reasons for improving cost/benefit analysis in regulatory decision making; a preference that EPA should measure the value of a statistical life year (VSLY), not the value of a statistical life (VSL); the importance of comparative risk assessment; and a specific case example of the intersection of regulatory policy and legal requirements (American Trucking Association vs. EPA).

Dr. Stavins noted that the purpose of the discussion was to consider ways in which the Committee might help EPA as it developed the new guidance on the estimation of the value of mortality risk reductions. Prominent in the discussion was what the EEAC might do to help and the breadth of the issues to be considered. There was a sense from some of the Committee that the issues to be considered should be broader than just economics (possibly social science, ethics, etc.). Dr. Stavins noted that such broader consideration often occurs at the Executive Committee when it discusses reports coming from Committees like the EEAC.

ACTION: The Committee decided:

- a) To offer a review of a draft agenda for the EPA workshop to be conducted to explore improvements to estimating the value of mortality risk reductions. Use of a telephone conference meeting and a Consultation format of interaction was the preferred approach.
- b) Receive briefings from the Agency on the status of these efforts at future meetings.
- c) Receive and consider a charge for review of a guidance document when EPA completes its drafting (probably during the winter of 2003).

3. Guest Speaker, Mr. Tracy Mehan

Dr. Stavins introduced the guest speaker for the meeting, noting that it has been a standing practice in recent years to have a prominent official from EPA (or other departments or agencies) who play particularly important roles with regard to the areas of this Committee's interests, to interact with the EEAC at its meetings. The speaker for this meeting was Mr. Tracy Mehan, Assistant Administrator for Water at EPA. Mr. Mehan has responsibility for implementing both the Clean Water Act and the Safe Drinking Water Act, along with several other environmental statutes (see attachments J and K).

Mr. Mehan acknowledged the contributions of the EEAC in the development of the Agency's economic analysis guidelines and the work of the SAB arsenic panel in developing recommendations that will help in that regulatory effort and in the further development of benefits estimation in EPA's drinking water programs.

Mr. Mehan noted the need for continued improvements in the application of benefit-cost analysis at EPA. In addition, he shared his intentions about the need for and the development of a "**trading policy**" to achieve more cost-effective improvements to water quality in the U.S. Mr. Mehan acknowledged the great achievements that have been made in dealing with traditional point source discharges through the Clean Water Act. He believes that the remaining problems in water quality are much more complex and come in the face of a changing global competitiveness paradigm. There is now a need for new tools to address new challenges in water quality. Economic incentives should be a part of the new tools that we use to address these remaining problems.

Mr. Mehan noted that trading is not a right to pollute, rather it "...simply allows a source to meet a regulatory obligation by using allocations or pollution reduction credits created by another source with lower pollution control costs." An updated policy statement, that applies lessons learned in

demonstration projects and addresses the outstanding regulatory issues in this area, is under development in the Office of Water. Mr. Mehan is committed to dealing with the environmental concerns that some people have with the possibility of “water trading.” He noted that “one of the most valuable lessons learned is the need to establish partnerships, between and among local, state and federal agencies and the general public.”

Mr. Mehan asked the EEAC to help EPA in identifying market based programs that might be available for this application. He also noted that OW will be expanding in the economics area soon.

Members were interested in the following issues:

- a) Additional Information on TMDLs and trading. Ecosystem functions; national capital issue; monitoring of water quality; where does it fit in? Mr. Mehan noted that the forthcoming rules (18 months) should not inhibit trading as a least cost option to achieving water quality. This is being evaluated internally now and will involve much interaction outside the Agency in the future. For now, EPA is in the mode of developing a policy statement to cover the issue of trading. Some efforts would require an overhaul of the law, but we are focused on things that can be done within the existing authority of law. There is much more to do beyond the internal efforts to develop the vision, how it relates to standards, the need for more research on issues. After a policy statement is drafted we will engage in extensive outreach to identify specific issues via the SAB and others. We are at the start now and we are open to input. We need an intense dialogue.
- b) Not to repeat bad experiences with trading (e.g., CAP limits in relation to additional actions that did not consider them) rather to focus on the good experiences. Mr. Mehan noted that in water, we can’t look at trading in isolation from other water office issues.
- c) California successfully experimented with tying water quality standards to water rights (an applied version of Segerson’s work). Can this be demonstrated in other states? What other incentives are being considered? Mr. Mehan noted many ECOS examples exist of experiments in how we can proceed in the water quality area. More are possible. Having watersheds as a focus will help us to bring options together to find the right mix of techniques/approaches to use in achieving water quality and trading.
- d) Heterogeneity of system characteristics across locations (especially in system sizes) was brought out by arsenic. How can this be accounted for in rulemaking/ implementation? Mr. Mehan noted that SDWA contemplates national standards. Environmental justice concerns are raised for specific locations and we get at this through the “**Affordability**” idea. EPA is committed to looking again at the “Affordability” issue. It may be the key for moving forward – size considerations for systems is by itself not enough to solve the issue.
- e) With market incentives, we often have problems in establishing the baseline property right. This issue can interfere with market incentives if we do not get it right.

Dr. Stavins noted that the EEAC had a history of working with the old Office of Policy, Planning, and Evaluation and much less with specific EPA program offices. He noted that the EEAC can be a good resource for the programs. It is a good source of low-cost talent for OW.

4. SAB Consultation on Market Incentives

Dr. Stavins introduced the Market Incentives Consultation and reminded the Committee of the informal nature of the interaction and that at the Science Advisory Board a Consultation is a means of conferring, as a group of knowledgeable individuals, with the Agency in a public session on a technical matter, before the Agency has begun substantive work on the issue. The goal is to leaven EPA's thinking by brainstorming about a variety of approaches to the problem very early in the process. There is no attempt or intent to express an SAB consensus or to generate a formal SAB position. The Board, via a brief letter, simply notifies the Administrator that a Consultation has taken place. For background information see Attachments L, M and N.

Dr. Stavins noted that economists and others in the Agency are now thinking of turning more attention to the use of economic incentives. He referred to the earlier remarks of EPA Assistant Administrators Mehan in which he expressed a strong interest in the application of these tools to environmental problems. He then introduced Drs. McGartland and McLean who gave the presentations for EPA.

a) **Dr. Albert McGartland**, Director of the EPA National Center for Environmental Economics,

Dr. McGartland introduced the briefing on EPA's thinking about opportunities for the use of economic incentives for protecting the environment. He stated that it is now time to revisit these issues and to see how best to target the techniques to get the biggest pay off to the environment (see Attachment O). This is consistent with the Administrator's goal in which EPA intends to "...place greater emphasis on innovative approaches to environmental protection, such as market-based incentives..."

Dr. McGartland asked the EEAC to focus on questions such as the:

- i) Best allocation of EPA economic resources to promote incentives?
- ii) Best incentive applications for attention by EPA economists?
- iii) Priority of increasing attention to incentives by EPA economists?

Dr. McGartland stated that in the past EPA concentrated on economic benefits of pollution control. The Agency now proposes, in addition, to expand in the areas of economic incentives and economic costs of pollution control. He cited two documents that discuss past experience in this area (see Attachments L and M) and noted that the focus of Agency economists is now changing to: evaluation of behavioral responses to regulation; mechanisms design for market incentives; empirical applications of second-best; effectiveness of market-based incentives with relaxation of assumptions; and evaluation of policy effects from a non-optimal starting point.

Dr. McGartland noted that the challenge is now to decide how best to allocate our expertise to advance the use of economic incentives (i.e., alternative incentive areas for focus vs identification of specific candidates for expanding/new uses of economic incentives. He then discussed specific ideas for Agency efforts within each of the two categories.

- i) Opportunities to use EPA expertise to support incentives:
 - Review regulations and programs
 - Technical assistance
 - Evaluation of existing economic incentive programs
 - Comprehensive evaluations of existing incentive programs
 - More research
- ii) Some incentive candidates for attention by EPA Economists
 - Expand existing trading programs where efficient
 - Expand Nox emission trading
 - Reduce cap on SO₂ and other air pollutants
 - Assist more cities to develop air trading programs
 - Discourage wood-burning in urban areas where needed
 - Expand use of trading in TMDLs
 - Voluntary reductions of VOC emissions on ozone-alert days
 - Voluntary initiatives for industry trade associations
 - Increase emphasis on water and solid waste incentives

b) **Dr. Brian McLean**, EPA/OAQPS, Clean Air Markets Division

Dr. McLean discussed the activities of the Clean Air Markets Division in the Office of Air. The program is active in the areas of acid rain, ozone transport, comprehensive power sector strategies, and greenhouse gases. He discussed the results of the programs for the acid rain program (see Attachment P).

The **Emissions Cap and Trade** program establishes what needs to be done by setting an overall emissions cap and then allocates allowances equal to the cap among affected sources. The program requires measurement and reporting of all emissions, automatic penalties and offsets, holding and retirement of allowances equal to emissions; and it allows total flexibility in how and when a source complies. It has no required government approval of compliance plans or allowance trades.

Dr. McLean stated that the benefits of the cap & trade program include: more certainty that a specific level of emissions will be achieved and maintained over time; more regulatory certainty for sources; more compliance flexibility and lower transaction costs for sources; fewer administrative resources needed by industry and government; and it drives down cost making further improvements feasible. The keys to a successful cap & trade program are to have a cap in place, accountability, and have a simple design and operation.

Because some view the current regulatory approach as complex and burdensome and inadequate for protecting public health and the environment, a comprehensive multi-emissions strategy is under

consideration that would address multiple environmental issues and reduce costs. Such a strategy is compatible with electric industry restructuring; provides broad regional reductions while allowing states flexibility to address local issues; and can be implemented by EPA and industry. EPA is now analyzing policy options and a proposal went to inter-Agency review in August. In addition, Senate Bill 556 is to be in mark-up in February.

Members were interested in the following issues:

- a) For water issues, there is greater uncertainty in outcomes due to variations place to place. The ultimate challenge might be to match adaptive management approaches, with public trust, and the market. This will be difficult.
- b) Concerned that the “fourth pollutant” is apparently off the table.
- c) It would be useful to do an evaluation of real cap & trade programs.
- d) Large research needs exist for “voluntary initiatives” and “information programs” – our understanding is far less here than in cap & trade.
- e) There is a concern that terms may be somewhat confused within the overall area discussed by the “Blue Book.” Trivializing use of terms may be hazardous. May also need to lay out the next, more complex steps in another document beyond the “Blue Book.”

The notice of Consultation is attached to these minutes as Attachment Q.

ACTION: The Committee:

- a) Provided advice during the discussion; and
- b) Expressed its willingness to explore with the Office of Water AA his needs for a specific SAB/EEAC charge (this would be in regard to the OW policy statement on trading that is being developed).

5. SAB Consultation on Economic Research Strategy Development

Dr. Stavins introduced the Economic Research Strategy Development Consultation and reminded the Committee of the nature of the interaction. He noted that research strategy development was a joint effort between the Agency's National Center for Environmental Research and the National Center for Environmental Economics. The Agency's goal for the research strategy is “to develop a research agenda that will provide high quality and practical research results that program and regional economists and policy analysts will need in the short and long term.”

Dr. Stavins introduced Drs. Matthew Clark and Brian Henniger, who made presentations for EPA.

- a) Dr. Matthew Clark presented an overview of the Agency's plans to develop its economic research strategy. The strategy will provide a framework and objectives to measure program effectiveness (see Attachment t).

Dr. Clark discussed specific details of the process to be followed in developing the strategy. The process will include: i) a survey of program and regional offices to determine priority research needs; ii) development of state-of-the-science reports in priority areas; iii) identification of remaining priority information gaps; iv) development of a draft report by a writing team; and v) an external peer review of the strategy.

Important considerations will be client specific and focus on the intended results, how they will be used, when results are needed, and quality requirements. EPA will also evaluate the appropriateness of specific research tools for each research area or need (e.g., contractors, in-house economists, extramural researchers, cooperative agreements).

EPA hopes to develop the strategy in the next 6 to 9 months (by August 2002). At that time, they would like to have the SAB/EEAC conduct a peer review and obtain comments from external stakeholders. (OMB, ECOS, other federal agencies, academics). Once completed, the final strategy will be published on the Agency website and noticed in the Federal Register. The strategy will then guide the development of the ORD economics Multi-year Plan. The plan itself will be used to develop future requests for proposal in this area.

The Agency asked for the Committee member's individual reflections on:

- i) Given the goals of the strategy, is the approach the most appropriate way for the Agency to proceed?
- ii) Are there additional suggestions of other techniques or considerations that could improve the approach?

The members were interested in the following issues:

- a) whether EPA expected new funding for the area or if the new research played out within a constant resource pool;
- b) characterizing existing knowledge as the state-of-science (it's a term of art for ORD);
- c) the tendency for short term data needs to overwhelm the need for long term forward looking research and the need for a framework to permit a longer term focus to the research that reflects appropriately the results of relevant near term research efforts;
- d) the appropriate level of effort for different research needs;

e) criteria to be used for identifying a “gap;”

f) a criterion for research identification could be to do research that provides the maximum net benefit to society – however, the answer to that question for specific projects would be different for different evaluators;

g) categorical labels for specific research projects will also vary with the person who does the categorization.

ACTION: The Committee:

a) Provided advice during the discussion; and

b) Indicated its willingness to conduct a review during the spring or summer of 2002 depending on the Agency’s time for delivering the strategy.

The notice of Consultation is attached to these minutes as Attachment U.

6. Update and Discussion of the Pollution Abatement Cost and Expenditures Survey (PACE)

Dr. Stavins introduced an EPA briefing on the Status of the Pollution Abatement Cost and Expenditures (PACE) Survey. The survey was formerly carried out by the Department of Commerce, and is now supported by EPA (NCEE), with help from the Bureau of the Census. PACE is an exceptionally important source of information for the government and for the research community on the costs of environmental regulation.

Dr. Stavins noted that several years ago, the PACE Survey was suspended by the Department of Commerce for budgetary reasons. The EEAC became involved, and held a discussion with then Assistant Administrator David Gardiner (OPPE) on November 18, 1998. The EEAC followed up with a “Commentary” to Administrator Carol Browner on the “Importance of Reinstating the PACE Survey” on January 19, 1999 (see Attachment V). Four months later, EPA announced that it would reinstitute the PACE Survey, with help from the Bureau of the Census. A workshop was subsequently held (at RFF) to improve the survey instrument and a survey was carried out of year 1999 costs in 2000. There is some concern with the evaluation of the survey instrument and the conduct of the next survey.

Dr. McGartland, NCEE Director noted that the previous survey was completed and that quality assurance and control checks are being slowly completed on the 1999 data. According to the Office of Management and Budget’s “Terms of Clearance” for use of the survey in collecting the 1999 data, EPA must evaluate the survey instrument prior to additional data collection activities. This evaluation will be expensive. EPA believes that it can do the evaluation, but it is not clear that they will have adequate funds to conduct the next survey.

Members were interested in whether the possible hiatus and a change to a two-year cycle was tied to the evaluation or if the need for additional resources for the survey was to be a continuing issue. The Committee asked if an additional Commentary would help EPA focus on the issue?

ACTION: The Committee decided to prepare a Commentary to further highlight its concerns over the possible interruption of the next phase of the survey. This is to be drafted by a subcommittee of the panel comprised of Drs. Stavins, Burtraw, and Joskow. The draft will be circulated for comment and approval to the full EEAC and then sent to the SAB Executive Committee for consideration and transmittal to the Administrator.

2:25-2:30 PM, Plans for Next EEAC Meetings

The Committee considered its next steps and decided to:

a) Premature Mortality Valuation:

- i) Offer a review of a draft agenda for the EPA workshop to be conducted to explore improvements in estimating the value of mortality risk reductions. Use of a telephone conference meeting and a Consultation format of interaction was the preferred approach.
- ii) Receive briefings from the Agency on the status of these efforts at future meetings.
- iii) Receive and consider a charge for review of a guidance document when EPA completes its drafting (probably during the winter of 2003).

b) Market-Based Instruments:

- i) To explore with the Office of Water AA his needs for a specific SAB/EEAC charge (this could be in regard to the OW policy statement on trading that is being developed).

c) Economic Research Strategy:

- i) Conduct a review during the spring or summer of 2002 depending on the Agency's time for delivering the strategy.

d) PACE Survey:

- i) Prepare a Commentary to further highlight EEAC concerns over the possible interruption of the next phase of the survey.

A date for the next EEAC meeting will be arranged soon. The DFO, Tom Miller, and the SAB staff will set up the meeting.

2:30 pm Adjourned

I certify that these minutes are accurate to the best of my knowledge.

/S/

/S/

Dr. Robert N. Stavins
Chairman
Environmental Economics Advisory
Committee

Mr. Thomas O. Miller
Designated Federal Officer
Environmental Economics Advisory
Committee

ATTACHMENTS

LIST OF ATTACHMENTS

A	FR announcement of the May 25, 2001 meeting; FR 66 No. 208: pp. 54243
B	Meeting agenda
C	Panel Roster
D	Sign in Sheets
E	McGartland PP Slides for VSL Issue
F	EPA DRAFT Plan for Developing Mortality Risk Valuation Guidance; 11/30/01
G	Hubbell PP Slides for VSL Issue (Current Research on Valuing Reduction in Fatal Risks)
H	Letter from M J Whinihan, Ph.D. General Motors
I	Whinihan PP Slides for Oral Comments of General Motors, 11/30/01
J	Bio for Mr. Tracy Mehan, AA EPA OW
K	Presentation of G. Tracy Mehan, AA to the EEAC on November 30, 2001
L	<i>Experience with Market-Based Environmental Policy Instruments</i> , R. N. Stavins; October 26, 2001
M	<i>The United States Experience with Economic Incentives for Protecting the Environment</i> , EPA-240-R-01-001; January 2001
N	EPA Questions for Market Incentives Consultation
O	McGartland PP Slides for Economic Incentives for Protecting the Environment; 11/30/01
P	McLean PP Slides for Clean Air Markets Division Presentation; 11/30/01
Q	Notice of Consultation for the Market Incentives Consultation
R	SAB Consultation: Approach to Develop a Research Strategy for Environmental Economics
S	Economics Research Strategy Survey Questionnaire
T	Clark PP Slides for Economic Research Strategy Plan
U	Notice of Consultation: Approach to Developing an Economic Research Strategy
V	Commentary; PACE; January 19, 1999